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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,498	04/19/2001	Thomas J. Sonderman	2000.067300	8900

7590 07/08/2003
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EXAMINER

OWENS, DOUGLAS W

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 07/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/838,498	Applicant(s) SONDERMAN ET AL.	
	Examiner Douglas W Owens	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) 19-41 and 48-55 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 42-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of the invention of group I, claims 1 – 18 and 42 – 47 in Paper No. 4 is acknowledged. The traversal is on the ground(s) that the claims of group III have similar elements to those in claims 1 – 18, and there is no undue burden on the Examiner. This is not found persuasive because the inventions are distinct if it can be shown that the process as claimed can be practiced by another materially different process. It was shown in the previous office action that the process as claimed can be practiced manually instead of using a program stored on a computer readable medium. The Applicant further argues that claim 23 is a claim drawn to a means for practicing the process. Claim 23 is actually drawn to an apparatus, including means to complete several processes. A process and an apparatus for its practice are distinct if it can be shown that the apparatus as claimed can be practiced by another materially different apparatus. It was shown in the previous office action that an apparatus comprising a computer for simulating the process task, which transfers the data to a disk or other storage medium, which is subsequently physically transferred to the processing tool. Additionally, the process can be practiced by hand, which is also a showing of distinctiveness.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claim 1 is objected to because of the following informalities: At the end of the last line of the claim, the semicolon should be replaced with a period. Appropriate correction is required.
3. Claims 14 and 47 are objected to because of the following informalities: In lines 3 and 4, "variability" should be replaced with "variable".

-----The phrase "said at least one" should be inserted in line 7, between "whether" and "component".

4. Claims 43 – 47 are objected to because of the following informalities: The claims are written as if they depend from the elected method claims, but they depend from non-elected claims drawn to a computer readable program storage device.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claims 11 – 13, 44 and 46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
7. Claims 11 and 44 recite the limitation "...said acquired model..." in line 6. There is insufficient antecedent basis for this limitation in the claim.
8. Claim 46 recites the limitation "...said defined model..." in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1 – 3, 7, 9, 10, 14, 15, 18, 42, 43, 46 and 47 are rejected under 35

U.S.C. 102(e) as being anticipated by US patent No. 6,581,029 to Fischer.

Regarding claims 1 and 42, Fischer teaches a method (Col. 1, lines 28 – 59),
comprising:

defining a process task (Col. 1, lines 27 and 28);

performing a process simulation function to produce simulation data

corresponding to said process task, said process simulation comprising:

preparing at least one processing model;

executing a simulation to generate a simulation result;

determining whether said simulation result is within a predetermined
specification; and

interfacing said simulation data with a process control environment for controlling
a manufacturing process of a semiconductor device (Col. 1, lines 47 – 52, the
simulation data is used to produce a device).

Art Unit: 2811

Regarding claim 2, Fischer teaches a method, further comprising performing a manufacturing process of the semiconductor device based upon said interfacing the simulation data with the process control environment.

Regarding claim 3, Fischer teaches a method, wherein performing the manufacture process would have inherently included processing a semiconductor wafer since a semiconductor wafer is required for the manufacture of semiconductor devices.

Regarding claim 7, Fischer teaches a method, wherein defining a process-task further comprises defining an implant process task (Col. 1, lines 47 – 49).

Regarding claim 9, Fischer teaches a method, wherein performing a process simulation function further comprises:

preparing at least one processing model for simulation (Col. 1, lines 54 – 59);

executing a simulation using said processing model to generate a simulation result;

determining whether said simulation result is within a predetermined specification (Col. 1, lines 50 – 53); and

applying said simulation result into at least one manufacturing parameter in response to a determination that said simulation result is within said predetermined specification.

Regarding claim 10, Fischer teaches a method, further comprising modifying said model in response to a determination that said simulation result is not within said predetermined specification (Col. 1, lines 54 – 59).

Art Unit: 2811

Regarding claims 14 and 47, Fischer teaches a method, wherein executing the simulation further comprises:

- modulating at least one variable;

- executing a model behavior based upon said variable;

- determining at least one component of variation based upon said execution of the model behavior; and

- determining whether said at least one component of variation is within a predetermined specification (Col. 1, lines 46 – 54).

Regarding claim 15, Fischer teaches a method, wherein modulating at least one variable further comprises modulating a temperature component (Col. 1, lines 47 – 50).

Regarding claim 18, Fischer teaches a method, wherein applying said simulation results into at least one manufacturing parameter further comprises modifying at least one manufacturing control parameter based upon said simulation result.

Regarding claim 43, Fischer teaches a method, further comprising modifying the model in response to a determination that the simulation result is not within the predetermined specification.

Regarding claim 45, Fischer teaches a method, wherein defining the processing model further comprising defining a process model.

Regarding claim 46, Fischer teaches a method, wherein validating the defined model further comprises integrating a plurality of defined models into a simulation environment.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 4 – 6, 8, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer.

Regarding claims 4 – 6 and 8, Fischer does not explicitly teach a method, wherein defining a process task comprises defining a photolithography, etch, chemical-mechanical polishing and diffusion process task. Fischer teaches a method, wherein the process tasks involved in forming a semiconductor device, such as a transistor, are simulated. It would have been obvious to one of ordinary skill in the art to include a photolithography, etch, chemical-mechanical polishing and diffusion task, since each of these tasks are required in the formation of a transistor.

Regarding claim 16, Fischer does not explicitly teach a method, further comprising performing a predictive state analysis in response to said execution of said model behavior. It would have been obvious to one of ordinary skill in the art to include the step of performing a predictive state analysis, since it is an essential step in modeling the manufacturing process.

Regarding claim 17, Fischer does not explicitly teach a method, further comprising performing a sensitivity state analysis in response to said execution of said model behavior. It would have been obvious to one of ordinary skill in the art to include

Art Unit: 2811

the step of performing a sensitivity state analysis, since it is an essential step in modeling the manufacturing process.

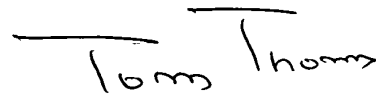
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas W Owens whose telephone number is 703-308-6167. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

DWO
June 24, 2003


TOM THOMAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800